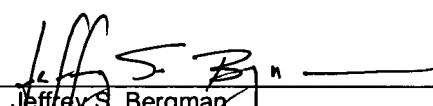


TRANSMITTAL OF APPEAL BRIEF			Docket No. 09432/183002	
In re Application of: David Llewellyn Mallis et al.				
Application No. 09/977,746-Conf. #3552	Filing Date October 15, 2001	Examiner E. K. Nicholson	Group Art Unit 3679	
Invention: WEDGE THREAD WITH TORQUE SHOULDER				
<p style="text-align: center;"><b><u>TO THE COMMISSIONER OF PATENTS:</u></b></p> <p>Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed: <u>February 15, 2006</u>.</p> <p>The fee for filing this Appeal Brief is <u>\$ 500.00</u>.</p> <p><input checked="" type="checkbox"/> Large Entity      <input type="checkbox"/> Small Entity</p> <p><input checked="" type="checkbox"/> A petition for extension of time is also enclosed.</p> <p>The fee for the extension of time is <u>\$ 120.00</u>.</p> <p><input type="checkbox"/> A check in the amount of _____ is enclosed.</p> <p><input type="checkbox"/> Charge the amount of the fee to Deposit Account No. <u>50-0591</u>. This sheet is submitted in duplicate.</p> <p><input checked="" type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input checked="" type="checkbox"/> The Director is hereby authorized to charge any additional fees that may be required or credit any overpayment to Deposit Account No. <u>50-0591</u>.</p> <div style="display: flex; justify-content: space-between;"><div> _____ Jeffrey S. Bergman Attorney Reg. No. 45,925 OSHA · LIANG LLP 1221 McKinney St., Suite 2800 Houston, Texas 77010 (713) 228-8600</div><div>Dated: <u>May 15, 2006</u></div></div>				



PATENT  
ATTORNEY DOCKET NO.: 09432/183002  
U.S. PATENT APPLICATION SERIAL NO.: 09/977,746

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : David L. Mallis et al.  
Serial No.: 09/977,746  
Filed : October 15, 2001  
Title : Wedge Thread with Torque Shoulder

Art Unit : 3679  
Examiner : D.E. Bochna

Assistant Commissioner for Patents  
Mail Stop Appeal Brief-Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPELLANT'S BRIEF UNDER 37 C.F.R. §41.37**

Dear Sir:

Pursuant to 37 C.F.R. §41.37, please consider the following Appellant's Brief in the referenced Application currently before the Board of Patent Appeals and Interferences.

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## **I. Real Party in Interest**

The real party in interest in the referenced Application is Hydril Company LP (“Hydril”). The present Application, Serial No. 09/977,746 (“the ’746 Application”), was filed on October 15, 2001 as a continuation-in-part application claiming the benefit of United States Patent Application Serial No. 09/294,889 (“the ’889 Application”). An Assignment transferring all interest from the inventors to Hydril for the ’889 Application was recorded by the USPTO on April 19, 1999 at Reel 9914 and Frame 0545. As the recorded Assignment explicitly incorporated all divisional, continuation, continuation-in-part, and reissue applications in the transfer, Hydril is the Assignee of the entire right in the present Application.

## **II. Related Appeals and Interferences**

To the best of the knowledge of the Appellant and the Appellant’s legal representative, there are no other appeals or interferences that will directly affect, be affected by, or have a bearing on the decision of the Board of Patent Appeals and Interferences (“the Board”) in this appeal.

## **III. Status of Claims**

The ’746 Application was filed on October 15, 2001. As filed, the ’746 Application included claims 1–18, of which claims 1 and 10 were independent claims. In a Response to Office Action filed on August 7, 2004, Applicant added independent claim 19 and cancelled claims 1-9.

As such, claims 10-19 are currently pending in the ’746 Application. All pending claims were finally rejected in an Office Action mailed December 27, 2005. A timely Notice of Appeal was filed on February 15, 2006.

#### **IV. Status of Amendments**

The claims were amended in a Response to Office Action filed on September 29, 2005. The amended claims were entered and considered in the final Office Action dated December 27, 2005, as evidenced by the Examiner's withdrawal of rejection of claim 10 under 35 U.S.C. §112, second paragraph. Therefore, all amendments submitted to the Examiner during prosecution have been entered and are reflected in the Claims Appendix.

#### **V. Summary of Claimed Subject Matter**

Independent claim 10 relates to a method including rotationally engaging a pin member and a box member. (Application, page 5, ¶ 25). The pin member has an external thread increasing in width in one direction such that the external thread includes load and stab flanks. (*Id.*). Furthermore, the box member has an internal thread increasing in width in the other direction (opposite the "one direction" of the pin member) such that the internal thread includes load and stab flanks. (*Id.*). Furthermore, the pin member and box member define a positive stop torque shoulder wherein torque is applied such that plastic deformation of the positive stop torque shoulder does not occur upon final makeup. (Application, pages 5-6, ¶ 26). Additionally, claim 19 recites a connection designed to operate in accordance with the method as recited in claim 10.

As described in the detailed description, one or more embodiments of the present invention may present advantages over the prior art. One problem encountered when trying to incorporate a wedge thread with a conical metal-to-metal seal in the prior art is that a very shallow seal angle is required to compensate for the linear variability of the wedge thread torque shoulder. (Application, page 2, ¶ 3). The present invention, however, incorporates a positive

stop torque shoulder in conjunction with the wedge thread, thus allowing for better axial control of the connection at final makeup without sacrificing advantages of the wedge thread. (*Id.*). Further, by providing a selected clearance between the internal and external stab flanks and controlling the torque, final makeup may be achieved without causing plastic deformation in the positive stop torque shoulder. (Application, pages 5-6, ¶ 26).

## **VI. Grounds of Rejection to be Reviewed on Appeal**

- A. Claims 10–19 rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.
- B. Claims 10, 11, and 15–19 rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,462,315 (“Klementich”).
- C. Claims 12–14 rejected under 35 U.S.C. §103(a) as unpatentable over Klementich in view of U.S. Patent No. 4,822,081 (“Blose”).

## **VII. Argument**

In this appeal, the Appellant respectfully asserts independent claims 10 and 19 are consistent with the originally filed specification for at least the reasons stated below. Next, the Appellant respectfully asserts independent claims 10 and 19 are patentable over Klementich for the reasons stated below. Furthermore, the Appellant respectfully asserts Blose does not provide that which Klementich lacks with respect to independent claims 10 and 19. Therefore, because dependent claims 11-18 are patentable for at least the same reasons, Appellant respectfully asserts that claims 10-19 stand or fall together for the purpose of this appeal.

**A. *Claims 10-19 not indefinite under 35 U.S.C. §112, first paragraph***

Claims 10-19 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. As it currently stands, claim 10 recites, in applicable part, “plastic deformation of the positive stop torque shoulder does not occur upon final makeup.” Claim 19 recites a connection designed to operate in accordance with claim 10. In rejecting the claims, the Examiner asserted that although the claims require that no irreversible plastic deformation occur *at* final makeup, the specification only supports a lack of irreversible plastic deformation *prior* to final make up.

In response, Appellant respectfully asserts that not having plastic deformation of the positive stop torque shoulder occur “upon final makeup,” as recited in claim 10, is equivalent to not having plastic deformation occur “prior to final make up.” (Application, pages 5-6, ¶ 26). As such, the Applicant’s description of avoiding plastic deformation prior to final makeup is sufficient for one skilled in the art to conclude that no plastic deformation would occur upon final makeup. It likely follows that if no plastic deformation occurs prior to final makeup, no plastic deformation would occur upon final makeup, as plastic deformation occurring exactly at the point of final makeup would not be possible. “To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.” MPEP §2163(I). The Appellant respectfully asserts that one of ordinary skill in the art would understand that avoiding plastic deformation up to final makeup is inherent in any connection avoiding plastic deformation prior to final makeup. Further, Appellant asserts that reciting a lack of plastic deformation upon final makeup is clearer for those attempting to discern the scope of the present invention in claims 10 and 19.



The Federal Circuit in analyzing indefiniteness requires that the claims, when read in view of the specification, must be consistent with the originally filed specification. Particularly, “if the claims, read in light of the [specification], reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more.” *Shatterproof Glass*, 758 F.2d at 624 (quoting *Georgia-Pacific Corp. v. United States Plywood Corp.*, 258 F.2d 124, 136 (2d Cir. 1958)). Thus, because Appellant has shown that the claims clearly recite the aspects of the invention disclosed in the specification, the application satisfies both the statutory requirements of 35 U.S.C. §112, first paragraph, and the test set forth by the Federal Circuit in, for example, *Shatterproof Glass*. Accordingly, the two statements are consistent and satisfy the written description requirement. As such, the Appellant respectfully requests the Board withdraws the Examiner’s rejection of claims 10-19 under 35 U.S.C. §112, first paragraph.

***B. Claims 10, 11, and 15-19 not anticipated under 35 U.S.C. §102(b) by Klementich***

Claims 10, 11, and 15-19 were rejected under 35 U.S.C. §102(b) as anticipated by Klementich. Under 35 U.S.C. §102(b), a claim in a patent application may be rejected if it is patented or described in a printed publication in this or a foreign country, or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. 35 U.S.C. §102(b). Furthermore:

“Anticipation under 35 U.S.C. §102 means lack of novelty, and is a question of fact. To anticipate, *every* element and limitation of the claimed invention *must* be found in a *single* prior art reference, arranged as in the claim.”

*Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) (emphasis added). The Federal Circuit has held repeatedly that anticipation requires disclosure of each and every element of the claimed invention in a single prior art reference. See, e.g., *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677 (Fed. Cir. 1988); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1574 (Fed. Cir. 1986). Appellant respectfully asserts that Klementich does not disclose each and every element of the invention as arranged in independent claims 10 and 19.

Particularly, Appellant respectfully asserts that Klementich does not disclose the avoidance of plastic deformation in a positive stop torque shoulder of a threaded connection upon final makeup as required in claims 10 and 19. Because Klementich is *silent* as to the existence or avoidance of plastic deformation in a positive stop torque shoulder upon final makeup, Appellant respectfully asserts that it is not a proper anticipating reference under 35 U.S.C. §102(b). See *Brown*, 265 F.3d at 1351.

In contrast, Figures 5A-5C of Klementich (reproduced below) disclose the connection of a pin member **514** and a box member **534** to create a center shoulder seal **500**. Initially, when the connection of Klementich is first assembled, the torque applied to makeup the connection creates two metal-to-metal seals: one seal between sealing surface **518** on the pin member **514** and sealing surface **538** on the box member **534**, and another seal between sealing surface **522** on the pin member **514** and sealing surface **542** on the box member **534**. (Klementich, column 22, lines 28-35).

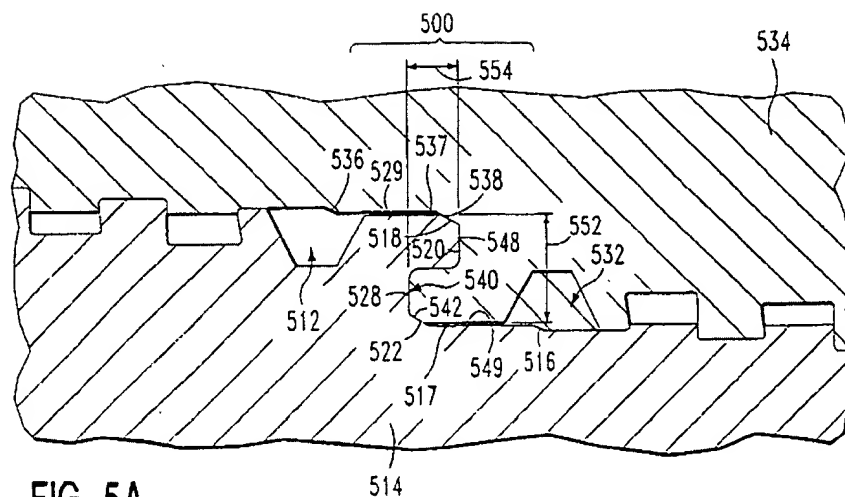


FIG. 5A

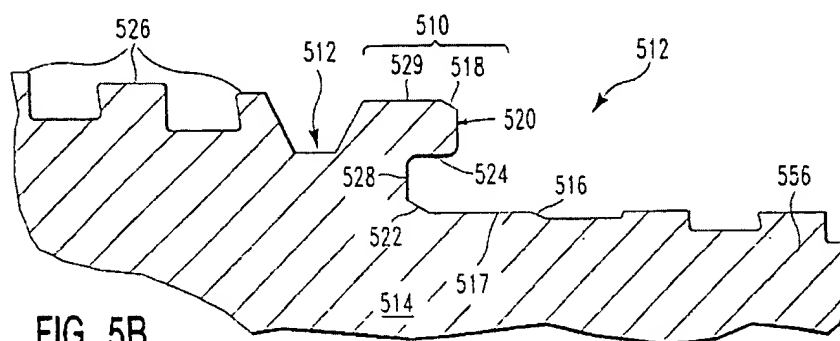


FIG. 5B

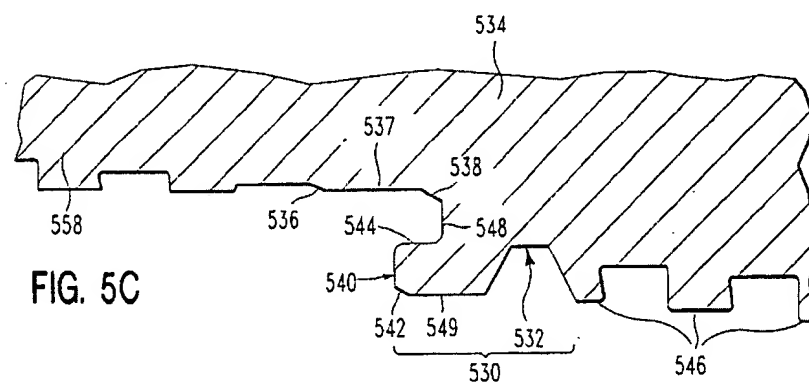


FIG. 5C

Following creation of these two metal-to-metal seals, Klementich discloses that another metal-to-metal seal maybe created “[a]s shoulders **520** and **540** move into position, typically they begin to bend slightly, closing the gap between surface **524**...and surface **544**...,

thereby producing a(nother) zero clearance, metal-to-metal seal.” (Klementich, column 22, lines 35-41). As disclosed, the bending of the shoulders **510**, **530** is necessary during makeup of the connection to produce metal-to-metal seals. Even though Klementich is *silent* as to the specific type of deformation occurring within the connection for the shoulders to bend, one of ordinary skill in the art of rotary threaded oilfield connections would understand that this bending would include both elastic and plastic modes of deformation.

Furthermore, after the bending and deformation is initiated in the connection at the three metal-to-metal seals (between surfaces **518** and **538**, surfaces **522** and **542**, and surfaces **524** and **544**), Klementich discloses a final power tightening (a second torquing) of the connection to produce two additional metal-to-metal seals. “Upon final power tightening of the assembled connection, the leading surface of shoulder **520** contacts first undercut surface **548** on box center shoulder configuration **530**, while the leading surface of shoulder **540** contacts second undercut surface **528** on pin center shoulder configuration **500**, thereby creating two additional zero clearance, metal-to-metal sealing surfaces.” (Klementich, column 22, lines 45-51).

Therefore, even assuming *arguendo* that plastic deformation does not occur at initial makeup when the first three metal-to-metal seals are produced, one of ordinary skill in the art of rotary threaded oilfield connections would understand that plastic deformation must necessarily occur upon final power tightening of the connection. As shown in Figures 5A-5C of Klementich, first center shoulder **510** on pin member **514** and second center shoulder **530** on box member **534** are relatively slender cantilevered structures that anchor at and extend axially outward from undercut surfaces **528** and **548**. Specifically, center shoulders **510**, **530** of the connection are preferably of a “locked double shoulder configuration... two to three times as ‘high’ in the radial direction (perpendicular to the tubular longitudinal axis) as it is ‘wide’ in the

axial direction (parallel to the connection longitudinal axis).” (Klementich, column 11, lines 36-41). Therefore, one of ordinary skill would recognize that upon initial makeup of the connection in Klementich, as the seals between surfaces **518** and **538** and between surfaces **522** and **542** are formed, substantial bending moments in center shoulders **510**, **530** would be produced. Furthermore, the bending moments produced would be amplified upon final power tightening of the connection. As such, the person of ordinary skill would recognize that the mating surfaces of the three metal-to-metal seals produced in the initial makeup and the center shoulders **510**, **530** would yield and plastically deform before the two subsequent metal-to-metal seals could be created in final power tightening stage.

In support, the Federal Circuit has held that an element is inherently disclosed in a prior art reference when a person of ordinary skill in the art would recognize its presence. *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1995). It is apparent, especially to one of ordinary skill in the art, that plastic deformation in positive stop torque shoulder **500** is *necessary* for Klementich to form at least some of the disclosed metal-to-metal seals within the connection. Claims 10 and 19 of the present application require a torque selected to avoid this very phenomenon. It has been discovered that avoiding plastic deformation of the positive stop torque shoulder increases the life of the connection without a significant loss in performance.

As Klementich does not disclose each and every element, specifically avoiding plastic deformation, as recited in independent claims 10 and 19 of the ‘746 Application, it is not a proper anticipating reference under 35 U.S.C. §102(b). *See Brown*, 265 F.3d at 1351. Furthermore, as claims 11 and 15-18 properly depend from and are narrower in scope than claim 10, they are also not properly anticipated by Klementich. Therefore, Appellant respectfully

requests the Board reverse the Examiner's rejection of claims 10, 11, and 15-19 under 35 U.S.C. §102(b).

**C. *Claims 12-14 not unpatentable over Klementich in view of Blose under 35 U.S.C. §103(a)***

Claims 12-14 were rejected under 35 U.S.C. §103(a) as obvious over Klementich in view of Blose. The heart of the statutory test of obviousness is found in the first sentence of 35 U.S.C. §103, which denies patentability:

[I]f the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

A conclusion of obviousness may be established on the basis of one or more prior art references. Before a conclusion of obviousness may be made based on a combination of references, however, there must have been a reason, suggestion, or motivation to combine the teachings of those references. *See ACS Hosp. Sys. Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984). The suggestion may come from the nature of a problem to be solved, leading inventors to look to references relating to possible solutions for that problem. *See, e.g., In re Rinehart*, 531 F.2d 1048, 1054 (C.C.P.A. 1976).

In the present case, Blose does not show or suggest that which Klementich lacks with respect to independent claims 10 and 19. Specifically, Blose does not show or suggest the avoidance of plastic deformation of the positive stop torque shoulder upon final makeup of the connection. The Examiner has only relied on Blose to show the use of positive stop torque shoulders. Any assertion that Blose showed or suggested avoidance of plastic deformation of the

positive stop torque shoulder would fail for the same reasons as those of Klementich, as Blose is silent on such avoidance of plastic deformation.

Further, Blose not only does not teach, but actually *teaches away* from the presently claimed invention. Specifically, Blose teaches the use of plastic deformation to strengthen the connection and improve sealing throughout the patent. (Blose, column 4, lines 28-66). “The mating shoulders **41** and **43** and end faces **42** become deformed after making contact upon application of high axial compressive loading – e.g. driving forces...The shoulders may coin unelastically during driving of the casing.” (Blose, column 9, lines 22-34). The term “coin” is defined as deform in Blose. (Blose, column 4, lines 46-47). It is therefore apparent that similarly to Klementich, Blose discloses the making up of a connection until plastic deformation occurs, in contrast to the presently claimed invention. Therefore, Blose teaches away from the invention as described in claim 10 of the ‘746 Application and any rejection under 35 U.S.C. §103(a) by Klementich, Blose, or any combination thereof is to be improper. *See In re Bell*, 991 F.2d 781, 784 (Fed. Cir 1993).

In view of the above, Klementich and Blose, whether considered separately or in combination, fail to show or suggest the present invention as recited in independent claims 10 and 19 of the ‘746 Application. Therefore, independent claims 10 and 19 are patentable over Klementich and Blose. Claims 12-14, which properly depend from claim 10 and are therefore narrower in scope are patentable for at least the same reasons. Therefore, Applicant respectfully requests the Board withdraw the Examiner’s rejection of claims 12-14 under 35 U.S.C. §103(a) and allow the present application to issue.

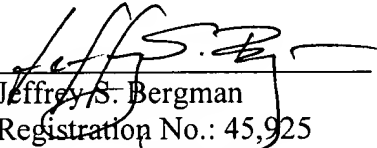
### VIII. Conclusion

For the reasons presented above, claims 10-19 of the '746 Application are patentable over the cited art, as Klementich does not disclose all of the limitations recited therein. *See Brown*, 265 F.3d at 1351. Furthermore, Blose does not provide that which Klementich lacks with respect to claims 10-19. Therefore, the Applicant respectfully requests that the Board reverse the Examiner's rejections and allow all pending claims 10-19 of the '746 Application.

Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference No. 09432/183002).

Date: 5/15/06

Respectfully submitted,

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## Claims Appendix

### Claims of Record in the Application

1-9 (Cancelled)

10. A method comprising:

rotationally engaging a pin member and a box member, the pin member having an external thread increasing in width in one direction, the external thread comprising load and stab flanks, the box member having an internal thread increasing in width in the other direction, the internal thread comprising load and stab flanks, the pin member and box member defining a positive stop torque shoulder,

wherein a torque is applied such that plastic deformation of the positive stop torque shoulder does not occur upon final makeup.

11. The method of claim 10 wherein the positive stop torque shoulder is disposed at an interface of a box face disposed on the box member and a pin outer diameter shoulder disposed on the pin member.

12. The method of claim 10 wherein the positive stop torque shoulder is disposed at an interface of a pin nose disposed on the pin member and a box inner diameter shoulder disposed on the box member.

13. The method of claim 10 wherein the external thread of the pin member has a two-step configuration having an outer diameter shoulder, the internal thread of the box member has a two-step configuration having a face, and the positive stop torque shoulder is disposed at an interface of the box face and the pin outer diameter shoulder.

14. The method of claim 10 wherein the external thread of the pin member has a two-step configuration having a nose, the internal thread of the box member has a two-step configuration having an inner diameter shoulder, and the positive stop torque shoulder is disposed at an interface of the pin nose and the box inner diameter shoulder.

15. The method of claim 10 wherein the internal thread of the pin member has a two-step configuration, the external thread of the box member has a two-step configuration, and the positive stop torque shoulder is disposed at an interface between the two steps of the pin and box members.

16. The method of claim 10 wherein the internal and external threads are adapted to form a metal-to-metal seal.

17. The method of claim 10 wherein the internal thread of the box member comprises a tapered, internal, generally dovetail-shaped thread having stab flanks, load flanks, roots, and crests.

18. The method of claim 10 wherein the external thread of the pin member comprises a tapered, internal, generally dovetail-shaped thread having stab flanks, load flanks, roots, and crests.

19. A connection designed to operate in accordance with the method of claim 10.

## **Evidence Appendix**

Not applicable to the present appeal

**Related Proceedings Appendix**

Not applicable to the present appeal